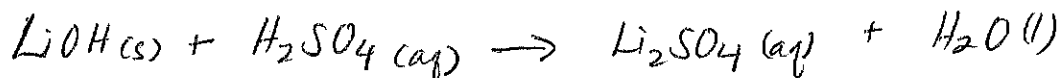


Writing Complete Equations Practice

For each of the following problems, write complete chemical equations to describe the chemical process taking place. Important note: There are a few physical processes on this sheet – remember, you can't write an equation for a physical process!

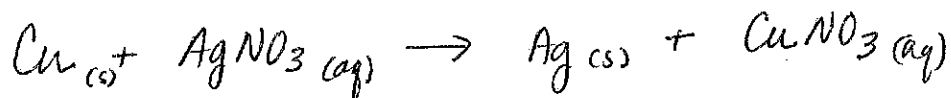
- 1) When lithium hydroxide pellets are added to a solution of sulfuric acid, lithium sulfate and water are formed.



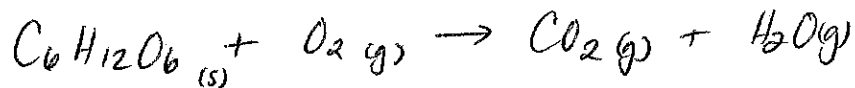
- 2) When dirty water is boiled for purification purposes, the temperature is brought up to 100° C for 15 minutes.

physical

- 3) If a copper coil is placed into a solution of silver nitrate, silver crystals form on the surface of the copper. Additionally, highly soluble copper (I) nitrate is generated.



- 4) When crystalline C₆H₁₂O₆ is burned in oxygen, carbon dioxide and water vapor are formed.



- 5) When a chunk of palladium metal is ground into a very fine powder and heated to drive off any atmospheric moisture, the resulting powder is an excellent catalyst for chemical reactions.

Physical

Writing Chemical Equations from Word Equations

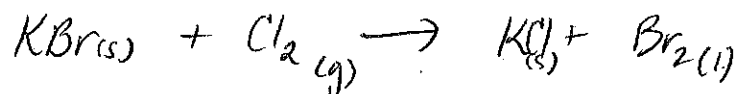
Chem. 1-2

Name: _____

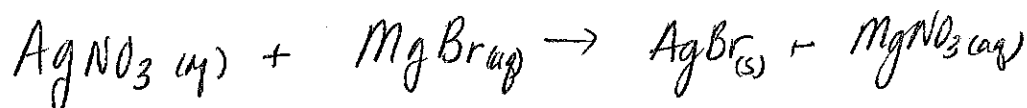
Class: _____

Write a chemical equation from the following descriptions of chemical reactions. Be sure to include the correct physical state for each species in the chemical equations along with any appropriate symbols describing the reaction environment (may need to look at PowerPoint's in binders or in your book).

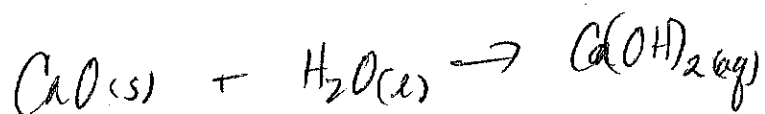
1. Solid potassium bromide is combined with chlorine gas to produce solid potassium chloride and liquid bromine.



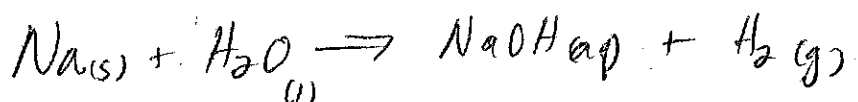
2. Aqueous silver (I) Nitrate reacts with aqueous magnesium bromide to give solid silver bromide and aqueous magnesium nitrate.



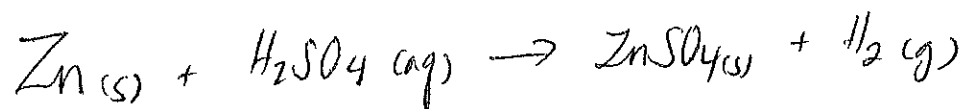
3. Solid calcium oxide added to water will form aqueous calcium hydroxide.



4. Sodium metal added to water will produce sodium hydroxide in solution and hydrogen.



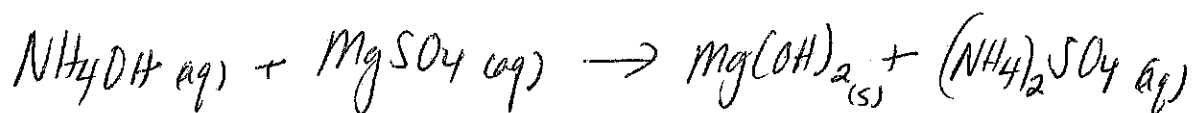
5. Zinc metal introduced to sulfuric acid yields solid zinc (II) sulfate and hydrogen.



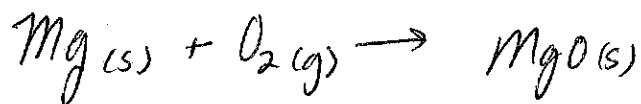
6. Sulfur dioxide gas plus bromine produces sulfur dibromide solid and oxygen.



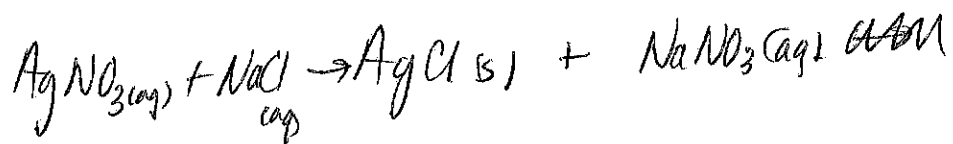
7. Aqueous ammonium hydroxide is added to aqueous magnesium sulfate to produce solid magnesium hydroxide and aqueous ammonium sulfate.



8. Magnesium in the presence of oxygen will produce magnesium oxide when heated.



9. Solid silver chloride and aqueous sodium nitrate can be produced by mixing solutions of silver (I) nitrate and sodium chloride.

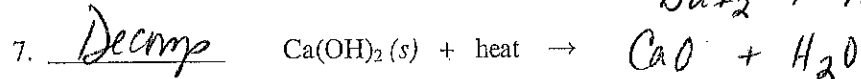
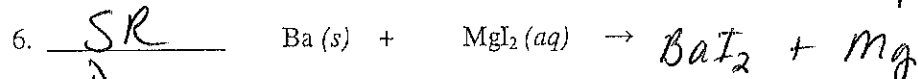
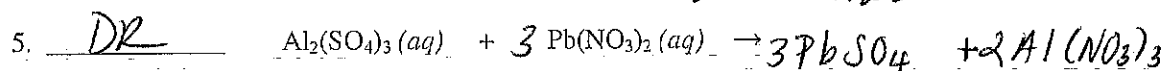
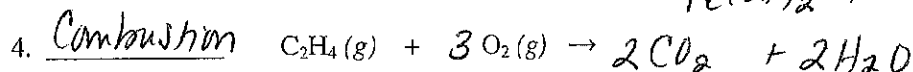
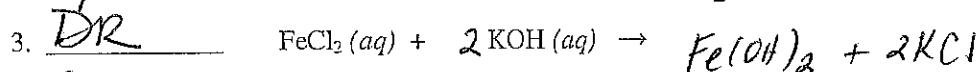
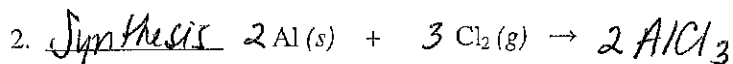
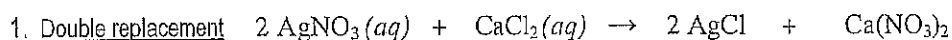


Answers

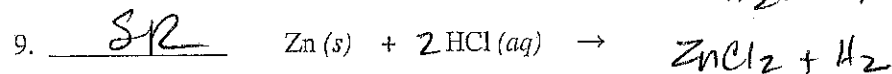
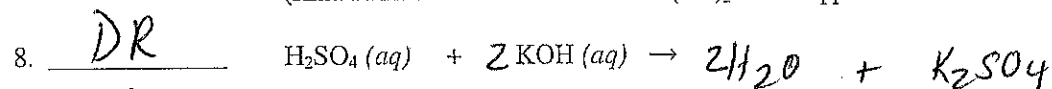
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2.	1, 12	---	8		
3.	2	---	2, 1		
4.	1, 2	---	1, 1		
5.	2, 2	---	2, 1		
6.	1, 8	---	10, 16		
7.	4, 11	---	8, 6		
8.	4, 3	---	2		
9.	2, 15	---	14, 6		
10.	4, 11	---	2, 8		
11.	1, 3	---	2, 3		
12.	2, 1	---	2		
13.	2, 5	---	4, 2		
14.	2	---	2, 1		
15.	1, 11	---	7, 8		
16.	1, 4	---	1, 2		
17.	2	---	2, 3		
18.	4	---	3, 1		
19.	1, 6	---	4		
20.	4, 3	---	1		
21.	1, 5	---	3, 4		
22.	1, 3	---	2, 3		
23.	1, 4	---	5, 1		
24.	8, 8	---	1, 16		
25.	3, 4	---	1, 4		
26.	1, 3	---	2		
27.	2, 1	---	2		
28.	6, 6	---	1, 6		
29.	1, 4	---	1, 4		
30.	2	---	1, 1		
31.	1, 2	---	1, 1		
32.	2, 3	---	1, 6		
33.	1, 6	---	3, 2		
34.	1, 8	---	1, 4, 4		
35.	2, 3	---	1, 3		
36.	1, 2	---	2, 1, 1		
37.	1, 5	---	2		
38.	1, 1	---	2		
39.	4, 3	---	2		
40.	2, 2	---	4, 1		
41.	1, 1	---	1, 1		
42.	2	---	1, 3		
43.	1, 3	---	2, 3		
44.	1, 3	---	1, 3		
45.	2, 6	---	1, 6		
46.	1, 1	---	2		
47.	2, 6	---	2, 3		
48.	6	---	1, 7		
49.	3, 1	---	1		
50.	2, 1	---	1, 1, 1		

Predicting Products of Chemical reactions

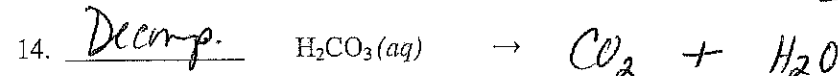
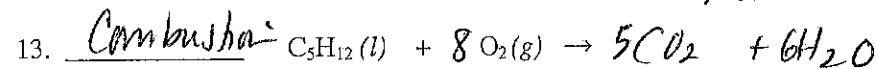
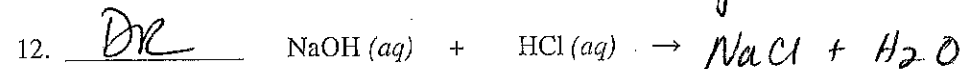
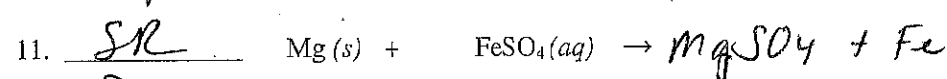
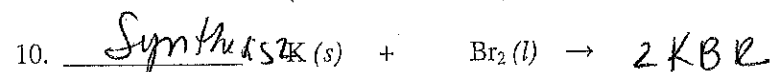
For the following, you should (a) determine the type of reaction. (Suggested answers are: single replacement, double replacement, combination (or synthesis), decomposition, and combustion.) (b) Predict the correct products. (c) Balance the reaction. The first equation is done for you as an example. At this point, do not worry about the (s), (l), (g), and (aq) states. Remember to first write the products with the correct formulas. When writing a product that is ionic, determine the correct ratio of the positive ion to the negative ion to form a neutral compound and indicate that with subscripts. Then balance the equation using only coefficients. The answers are on the following page.



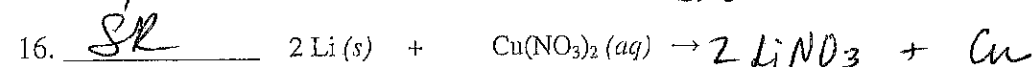
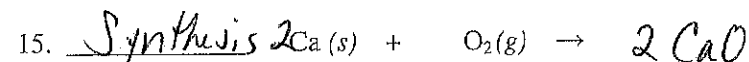
(Hint: Remember the reaction with $\text{Cu}(\text{OH})_2$ in the copper lab exercise. What happened then?)



(Zinc forms a 2+ ion.)

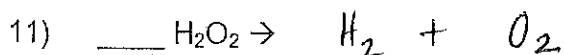
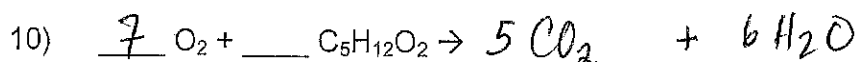
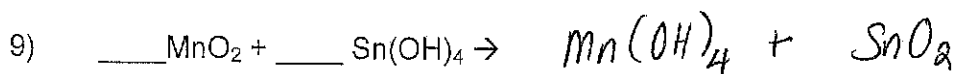
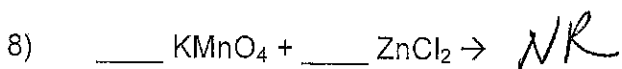
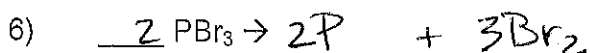
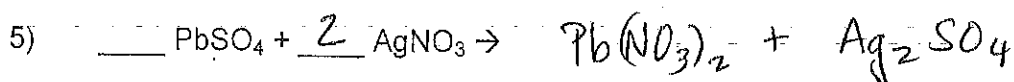
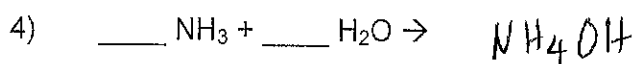
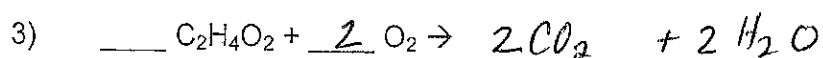
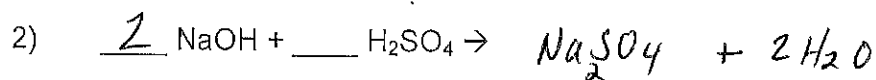
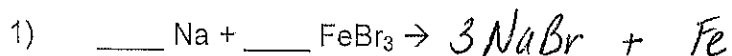


(Hint: H_2CO_3 is the weak acid that is in soda pop that gives pop it's fizz. What is the fizz?)



Predicting Reaction Products

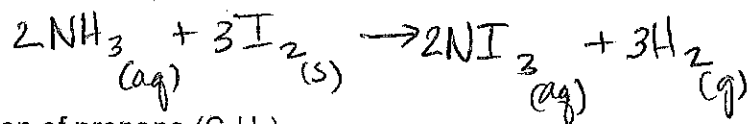
Balance the equations and predict the products for the following reactions:



Worksheet: Writing Equations

Write equations for the following reactions:

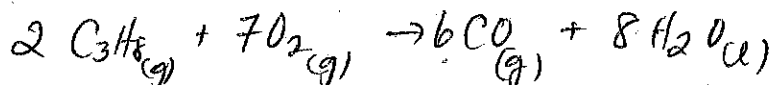
- 1) The reaction of ammonia with iodine to form nitrogen triiodide (NI₃) and hydrogen gas.



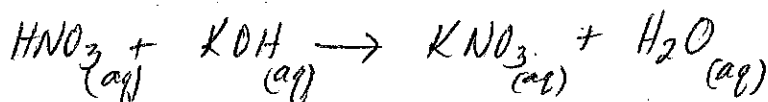
- 2) The combustion of propane (C₃H₈).



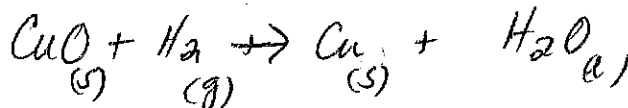
- 3) The incomplete combustion of propane to form CO and water.



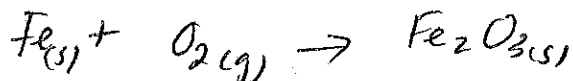
- 4) The reaction of nitric acid with potassium hydroxide.



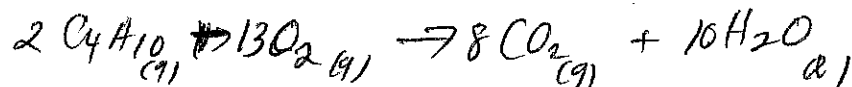
- 5) The reaction of copper (II) oxide with hydrogen to form copper metal and water.



- 6) The reaction of iron metal with oxygen to form iron (III) oxide.



- 7) The complete combustion of 2,2-dimethylpropane (C₄H₁₀) in oxygen.



- 8) The reaction of AlBr₃ with Mg(OH)₂



- 9) The decomposition of hydrogen peroxide to form water and oxygen.



- 10) The reaction of ammonia with sulfuric acid.

